School of Advanced Airpower Studies
Maxwell AFB, Al 36112

REPORT DOCUMENTATION PAGE

1. REPORT DATE (DD-MM-YYYY)	2. REPORT TYPE	3. DATES COVERED (FROM - TO)
01-06-1998	Thesis	xx-xx-1998 to xx-xx-1998

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Avoiding the Seam: An Analytical Framework for Deep Attack	5b. GRANT NUMBER
Unclassified	5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)	5d. PROJECT NUMBER
Fowler, Kevin J. ;	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME AND ADDRESS	8. PERFORMING ORGANIZATION REPORT NUMBER
School of Advanced Air Power Studies Air University Maxwell AFB , AL 32116	

9. SPONSORING/MONITORING AGENCY NAME AND ADDRESS	10. SPONSOR/MONITOR'S ACRONYM(S)
,	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT

A
PUBLIC RELEASE

,

13. SUPPLEMENTARY NOTES

14. ABSTRACT

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be used to improve interservice cooperation. The focus is on deep operations because of the potential for the two services to create a seam during deep attack in which neither service can target enemy installations or forces effectively. The study begins with five proposed characteristics of an analytical framework: 1. Standardize terms. 2. Achieve full potential of combined effects. 3. Provide mutual protection. 4. Mitigate the possibility of fratricide. 5. Eliminate the creation of seams. It then tests this proposed analytical framework using two historical case studies. The first case examines the evolution of AirLand Battle doctrine and the relatively effective interservice dialogue that occurred through the 1980s. The study next considers the operations of the Israeli Defense Force in the Bekaa Valley to determine if this experience modifies the framework. After synthesizing the results from the historical cases, the analyst proposes how the analytical framework might be used to enhance Army-Air Force cooperation on deep attack. The final chapter analyzes the framework?s implications for the current doctrine of the US Army and the Air Force. The study concludes by examining several problems that result from the contradictory nature of today?s doctrine.

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
			Public Release	80	Fenster, Lynn lfenster@dtic.mil
a. REPORT Unclassified	**b. ABSTRACT** Unclassified	**c. THIS PAGE** Unclassified			**19b. TELEPHONE NUMBER** **International Area Code** **Area Code Telephone Number** 703 767-9007 **DSN** 427-9007

AVOIDING THE SEAM:

AN ANALYTICAL FRAMEWORK FOR DEEP ATTACK

BY

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A THESIS PRESENTED TO THE FACULTY OF

THE SCHOOL OF ADVANCED AIRPOWER STUDIES

FOR COMPLETION OF GRADUATION REQUIREMENTS

SCHOOL OF ADVANCED AIRPOWER STUDIES

AIR UNIVERSITY

MAXWELL AIR FORCE BASE, ALABAMA

JUNE 1998

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The conclusions and opinions expressed in this document are those of the author. They do not reflect the official position of the US Government, Department of Defense, the United States Air Force, or Air University.

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Preface

Major Kevin J. Fowler was commissioned as a graduate of the United States Air Force Academy in 1984. Following training in the Euro-NATO Joint Jet Pilot Training program at Sheppard Air Force Base, he began flying the F-4 Phantom II at Osan Air Base, Republic of Korea, in 1986. Major Fowler served as an aircraft commander and four-ship flight lead in the last of the F-4 air superiority squadrons. He then transitioned to the F-4G Wild Weasel and became an instructor pilot in the suppression of enemy air defense mission. After thirty-four combat sorties as a Wild Weasel pilot during Operation Desert Storm, he was selected to attend the USAF-German Air Force F-4 Fighter Weapons School at Holloman Air Force Base, New Mexico. Upon completion, he was assigned as a fighter weapons instructor and as the F-4 Weapons School Commander. Major Fowler is a senior pilot with over two thousand flying hours. He has a bachelor's degree in International Affairs from the US Air Force Academy and a master's degree in Public Administration from Troy State University. In July 1998, Major Fowler was assigned to the Ninth Air Force as an air campaign planner.

Acknowledgments

I would like to acknowledge several people without whose support and help I would never have gotten off the ground with this study. I want to thank General Donn A. Starry, USA, Retired, General Wilbur L. Creech, USAF, Retired, and Colonel Richard H. Sinnreich, USA, Retired for their prompt replies to my questions. Their insights were invaluable to making my study a more balanced treatment of the subject.

I especially want to thank Dr. Harold R. Winton and Professor Dennis M. Drew for their time and patience. Their support and editorial comments kept my effort on track.

Most importantly, I want to express my greatest appreciation for my wife, Valerie. Her unconditional love, patience, and understanding throughout this year of study ensured my success in completing this project.

Abstract

This study analyzes Army-Air Force cooperation during the previous twenty-five years in an effort to derive an analytical framework that the two services can use as the basis for future cooperative efforts. The conclusion is that such a framework can be derived from previous agreements and should be used to improve interservice cooperation. The focus is on deep operations because of the potential for the two services to create a seam during deep attack in which neither service can target enemy installations or forces effectively. The study begins with five proposed characteristics of an analytical framework:

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It then tests this proposed analytical framework using two historical case studies. The first case examines the evolution of AirLand Battle doctrine and the relatively effective interservice dialogue that occurred through the 1980s. The study next considers the operations of the Israeli Defense Force in the Bekaa Valley to determine if this experience modifies the framework. After synthesizing the results from the historical cases, the analyst proposes how the analytical framework might be used to enhance Army-Air Force cooperation on deep attack. The final chapter analyzes the framework's implications for the current doctrine of the US Army and the Air Force. The study

concludes by examining several problems that result from the contradictory nature of today's doctrine.

Chapter 1

Introduction

In the waning hours of Operation Desert Storm, significant elements of Iraq's elite Republican Guard escaped. Despite the high priority assigned its destruction, a seam had developed in which neither the Army nor the Air Force effectively targeted the fleeing Iraqis. The confusion stemmed from an internal debate between ground and air commanders over which service controlled the airspace over enemy formations. The debate erupted during the final hours of the war into a battle over the placement of the fire support coordination line (FSCL). According to Army doctrine, appropriate land force commanders establish and adjust FSCLs within their boundaries "in consultation with superior, subordinate, supporting, and affected commanders."[1] Although not a boundary, attacks inside the FSCL must be fully coordinated with the establishing commander to avoid fratricide, an important characteristic of any command and control system. Beyond this line, sufficient warning must still be provided to all affected commanders, including

[1] Department of the Army Field Manual (FM) 100-103-2, Multi-service procedures for the Theater Air-Ground System (TAGS), 31 October 1994, n.p.; on-line, Internet, 15 May 1998, available from http:// www.atsc-army.org/cgi-bin/atdtl.dll/fm/100-1032/toc.htm.

air commanders, to mitigate "friendly fire" casualties. In emergency situations, however, an inability to warn will not preclude an attack beyond the line from occurring.[2]

In a controversial decision made without reference to the air component, corps commanders extended their FSCLs twice in an effort to ensure sufficient freedom of action for organic forces.[3] The corps commanders were responding to restrictions imposed by air planners that were designed to keep the Army's attack aviation safe from friendly, fixed-wing aircraft.[4] An unintended consequence of these safety restrictions was the inability of the attack aviation units to respond to the fleeing Iraqi forces. The main body of Iraqis was escaping well to the north and east of the coalition's ground forces, and the restrictions limited the eastward movement of the Apache helicopters. Extending the FSCLs in an attempt to overcome this limitation was not enough to stop the fleeing Iraqis. As the war ended, the bulk of the Republican Guard divisions successfully escaped Kuwait. In its official account, the Army justified the extension by arguing that the planning cycle used by the air component was too slow to permit the last-minute integration of helicopters and fixed-wing airpower into a combined force that could have accomplished the coalition's objective.[5]

In an opposing opinion, the Air Force contended that the extension of the FSCL itself was the culprit. According to this point of view, corps commanders insisted on extending

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[2] Ibid.

[3] Gulf War Air Power Survey (GWAPS), Vol. II, Operations and Effects and Effectiveness (Washington, D.C., 1993), 314.

[4] Rick Atkinson, Crusade: The Untold Story of the Persian Gulf War (Boston: Houghton Mifflin Co., 1993), 462.

[5] Brig Gen Robert H. Scales, Jr., US Army, Certain Victory: The US Army in the Gulf War (Washington D.C.: Brassey's, 1994), 368.

FSCLs beyond the range where enough of their organic assets could be brought to bear.[6] In his *Presentation to the Commission on Roles and Missions of the Armed Forces* on 14 September 1994, then-Chief of Staff of the Air Force,

General Merrill A. McPeak, argued that the land commanders' attempts to extend their control were bound to fail. Simply put, the corps commanders did not have full control over all the deep attack assets required.[7] When the air component attempted to fill the remaining gap, the extended FSCLs created additional coordination requirements that could not be met. Pilots attacking inside the extended lines were required to contact ground or airborne forward air controllers (FACs) to help prevent attacks against friendly troops.[8] Most of the FACs, however, were supporting combat in western Kuwait and unable to participate in the deep battle.[9] The lack of forward air controllers meant that the required deep attacks could not be prosecuted. Poor weather was also a factor.[10] The FACs would have been hard pressed in the heavy clouds and rain to ensure coalition aircraft were attacking the correct targets. The air component's subsequent efforts to move back the FSCLs to enhance Air Force all-weather interdiction capabilities were too late to influence the escaping Iraqis. The dispute over the placement of the FSCLs took fifteen hours to resolve.[11] The result was a seam in which neither service targeted effectively. To prevent such undesirable seams from developing in future wars, the Army

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[6] GWAPS, 315.
[7] Gen Merrill A. McPeak, chief of staff, US Air Force, Presentation to the Commission on Roles and Missions of the Armed Forces, Washington D.C., 14 September 1994, 35.
[8] GWAPS, 315.
[9] Ibid.
[10] Ibid.
[11] Ibid.

and the Air Force need more effective command and control measures for combined deep attack.

The differences in opinion that resulted in the Iraqis' escape are reflected in the wide gulf that exists today between US Army and US Air Force expectations concerning the modern battlefield. One unfortunate consequence of these differing expectations lies in each service's concept of deep attack, i.e., the attack of the enemy's follow-on echelons with the intent to delay and disrupt their operations.[12] Both services' concepts come from deeply held beliefs about warfare, and both sides make reasonable assumptions based on those beliefs. The Army deals with deep attack by emphasizing maneuver and firepower, a combined arms approach requiring close direction from the ground component commander. The Air Force, on the other hand, prefers to deal with deep attack as an interdiction issue and is hesitant to allow ground commanders control over its sorties. As the use of precision-guided munitions increases, the Air Force is even beginning to advertise its ability to destroy enemy follow-on echelons without friendly land forces present.[13]

While each service naturally focuses on its inherent strengths, neither the Army nor the Air Force places sufficient emphasis on the combined employment of forces in the deep battle. Instead, each service insists on trumpeting its solutions in a spasm of parochialism that undermines the critical need for teamwork to disrupt and delay these additional echelons. Neglect of this vital area of interservice operations lies at the heart

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[12] Department of the Army Field Manual 100-5, Operations, June 1993, 6-14.

[13] Air Force Doctrine Document 2, Air and Space Power Organization and Employment, Spring 1998, Draft, 21.

of the controversy over the command and control (C^2) measures each service deems best for its vision of the modern battlefield. To complicate matters further, the Army's enhanced capability to attack follow-on forces has challenged traditional C^2 measures by blurring the distinction between close air support (CAS) and interdiction. In effect, both services expect to use the same airspace at virtually the same time, making close coordination crucial. This increased need for coordination comes at a time when the Army has eliminated echelons above corps, a result of downsizing that canceled the most effective operational level agreements hammered out during earlier wars.[14] Today, each service seems to compete for its needs in a climate of mutual distrust.

This study seeks to combat the mistrust by developing an analytical framework that the two services can use to promote effective command and control measures for deep attack battle management. Clearly, both Army and Air Force commanders require sufficient coordination and teamwork to retain both their ability to use initiative and the freedom to act as the need arises, especially when using long-range weapon systems. As these systems have matured, the argument over control of the enemy's airspace can result in a seam, an enemy sanctuary in which neither the Army nor the Air Force can effectively target. This study represents an attempt to structure the debate on this contentious issue by suggesting a framework that will allow the Army and the Air Force to begin a constructive dialogue to resolve the seemingly intractable problems associated with battlefield management of deep operations. If the services are able to agree on the

[14] Harold R. Winton, "An Ambivalent Partnership: US Army and Air Force Perspectives on Air-Ground Operations, 1973-90," in The Paths of Heaven: The Evolution of Airpower Theory, ed. Col Phillip S. Meilinger (Maxwell AFB, Alabama: Air University Press, 1997), 412.

standards by which an effective combined command and control system for deep attack should be judged, they will have taken an important first step toward resolving this problem.

Methodology

The study begins with five hypotheses posited as the foundation for a proposed analytical framework for combined deep attack. These hypotheses are tested using an American case study and one involving Israel. The first case is a critical examination of the evolution of the doctrine of AirLand Battle. The relatively high level of cooperation achieved by the Army and the Air Force in the initial development of this doctrine is examined to determine what support, if any, exists for the hypothetical framework. To test these hypotheses further, the study next focuses on the 1982 Bekaa Valley operation to determine how the Israeli Defense Force grappled with its interservice issues. As a more integrated military force, support for an analytical framework contributed by this case may provide additional insight. The results are then synthesized to determine whether enough evidence exists for the proposed analytical framework. In the final chapter, the analysis examines the state of contemporary American doctrine, both service-specific and joint, to ascertain the implications of the proposed framework for the future of combined deep attack.

In each case, both the Army and the Air Force points of view concerning deep attack are fully presented. In an attempt to maintain objectivity, each service's fundamental beliefs and specific analyses are described before any comments are made on their validity. The contradictory nature of some of the beliefs and statements espoused by each

service indicates the current state of this interservice relationship and serves as the impetus for this study.

Proposed Analytical Framework

To create a viable command and control system for combined deep attack, five characteristics are proposed, in order of precedence, as necessary elements of an Army-Air Force analytical framework for deep attack:

1. Standardize terms.
2. Achieve full potential of combined effects.
3. Provide mutual protection.
4. Mitigate the possibility of fratricide.
5. Eliminate the creation of seams.

The first characteristic, standardizing terms of reference, is posited as a critical initial step. The creation of a workable command and control system demands precise terminology. When a member of one service attempts to communicate to a member in the other, there should be no doubt about the contents of the message. Words and phrases that have different meanings within each service require clarification and standardization. The second proposed characteristic, achieving full potential of combined effects, will help set conditions for the desired end. The point of deep attack is to achieve the commander's objective. An effective bi-service C^2 system should maximize each service's capabilities, while minimizing limitations to achieve the desired effect. The third element, mutual protection, is proposed as a crucial condition for the actual conduct of a deep attack mission. Limiting the effectiveness of engagement by enemy defenses, both ground and airborne, will help ensure success. The fourth proposal, mitigating the possibility of fratricide, is another characteristic that should be inherent in the design of

any command and control system. The preservation of American lives and those of our allies or coalition members is a fundamental consideration in all operations. Mitigating "friendly fire" casualties is especially important in the highly lethal, complex, and technologically sophisticated environment of today's air-ground operations. The elimination of a sanctuary for the enemy is proposed as the final element of a viable analytical framework. The weak points of many large organizations are often found in the seams, or boundaries, between various smaller organizations that comprise the whole.[15] It should follow, then, that attacking the enemy's seams while preventing the development of one's own is a smart strategy. The ultimate aim of these proposed elements is to produce a useful framework of analysis for developing a better command and control system for Army-Air Force deep attack. These five characteristics are proposed as a set of minimum conditions for such a framework to exist.

Analytical Criteria

This study uses three criteria to determine the existence of support for the proposed deep attack framework. The first indicator is direct historical evidence. In other words, did the actual participants in the development of air-ground command and control measures explicitly acknowledge the use of specific criteria to guide their deliberations? Second, evidence of such criteria will also be sought in the doctrinal literature. In some cases, these criteria will be explicit. In other cases, they may be implicit and require

[15] McPeak, 17.

articulation by the analyst. The third criterion, where applicable, is the operational results of air-ground operations.

Chapter 2

The Evolution of AirLand Battle Doctrine

In the aftermath of the American military services' mixed performance during the Vietnam War, reformers instituted fundamental changes that had profound effects. The US Army spearheaded this effort by publishing its first post-Vietnam version of Field Manual (FM) 100-5, *Operations*, in 1976. With this breakthrough manual, which codified the "Active Defense" doctrine, the Army refocused its efforts on the European theater and acknowledged the increased lethality of the modern battlefield. Although unable to shed completely the legacy of Vietnam, General William E. DePuy, the first commander of the Army's newly formed Training and Doctrine Command (TRADOC), spent three years overhauling the Army's basic doctrine. His goal was to rebuild an Army exhausted and demoralized by its experience in Southeast Asia. Once again concerned primarily with defending western Europe against a massive armored thrust from the Warsaw Pact, General DePuy and his staff recognized that the widespread presence of relatively inexpensive, anti-tank guided missiles (ATGMs) provided soldiers a sharp increase in lethality. TRADOC, charged with the responsibility of both developing and teaching this new doctrine, began to spread the word about the primacy of firepower and the concept of Active Defense. Initially well received, the 1976 version of FM 100-5 became the basis of a reinvigorated Army with a sound doctrinal foundation. Unfortunately for General DePuy's legacy, Active Defense became tarred with the

impression of an over-reliance on defense, especially against new, maneuver-oriented Soviet tactics. Doomed to a short life as a result, a careful reading proves this manual was more balanced than generally appreciated.[1]

General DePuy based Active Defense on the results of the 1973 Yom Kippur War and on talks held with the West German army.[2] The results of the Arab-Israeli conflict in 1973 indicated an exponential increase in the lethality of modern weapons. Shockingly, the total losses of tanks and artillery for both sides during this war exceeded the entire tank and artillery inventory of the US Army in Europe.[3] Highly mobile ATGMs, which became available in ever greater numbers in the Seventies, gave dismounted defenders the ability to stop previously unstoppable armored thrusts. This new lethality dovetailed nicely with the expressed need of the West German army to prevent the Warsaw Pact from occupying western soil. The Germans, preferring to avoid the use of their homeland as a battlefield, helped convince General DePuy and TRADOC that it was possible to forgo a defense in depth.[4]

Combining these elements, the core teachings of Active Defense were to substitute firepower for manpower, to employ rapid lateral battlefield movements to defend key

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[1] John L. Romjue, From Active Defense to AirLand Battle: The Development of Army Doctrine, 1973-1982 (Ft. Monroe, Virginia: TRADOC Historical Office, June 1984), 14. The 1976 manual explicitly acknowledged that offensive operations generally determine the outcome of battle. The manual also carefully stated that the increase in the lethality of modern firepower did not eliminate maneuver, but rather forced maneuver to be sufficiently weighted with firepower.

[2] Richard G. Davis, The 31 Initiatives (Washington, D.C.: Office of Air Force History, 1987), 27.

[3] Paul H. Herbert, Deciding What Has to Be Done: General William E. DePuy and the 1976 Edition of FM 100-5, "Operations" (Fort Leavenworth, KS: Combat Studies Institute, 1988), 30.

points, and to take maximum advantage of a tactical defensive posture.[5] In effect, Active Defense sought to protect friendly troops from the new level of lethality while preserving their ability to inflict damage on the enemy.[6] One positive way to inflict this simultaneous need for protection and damage was through the use of airpower. Active Defense laid the foundation for greater Army-Air Force cooperation with its statement, "*the Army cannot win the land battle without the Air Force"* (emphasis in original).[7] As a doctrinal statement, Active Defense and the Army's renewed emphasis on the entire doctrinal process served both to renew the Army's vitality and to begin forging closer ties between the Army and the Air Force.

General DePuy developed another critical aspect of Active Defense after acknowledging political realities. Anticipating a short war, he emphasized the importance of winning the first battle.[8] Given the fear of nuclear escalation and the desire to limit the loss of life in densely populated areas, the political climate had evolved to reflect a greater propensity for quick, negotiated settlements. These factors implied a relatively short conventional war, with or without nuclear escalation, in which the United States would not have time to out-produce the Soviet Union.[9] To achieve a favorable settlement in this "come-as-you-are war" scenario, Active Defense required superior intelligence to stop the enemy's main thrust at the proper place and time. With the emphasis on winning the first battle and an acknowledgment of the increased lethality of

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[4] Ibid., 65.
[5] Davis, 28.
[6] Herbert, 31.
[7] Department of the Army Field Manual 100-5, Operations, July 1976, 8-1.
[8] Herbert, 31.

modern battlefield weapons, Active Defense became intimately associated with the primacy of defense, an attrition-oriented style of fighting which did not endear it to those officers convinced of the value of offense and maneuver in depth.

While the relative merits of Active Defense were hotly debated among Army officers, the changing nature of Warsaw Pact doctrine began to tilt the nature of the debate in favor of the critics of the 1976 version of FM 100-5. In the late Seventies, Warsaw Pact doctrine began to reflect an interest in operational maneuver groups based on lessons learned from the extensive use of ATGMs in 1973.[10] The Soviets designed these maneuver groups to probe for weak spots that could then be exploited by follow-on forces. This change from the more traditional massive armored thrust to a nonlinear battlefield provided an impetus to those officers desiring to maintain some initiative and exploit Soviet weaknesses through the maneuver of friendly forces.[11] Although sufficient firepower was still a critical component, maneuver and initiative regained prestige as the emphasis changed from winning the first battle to ensuring the US and its allies won the all-important final battle.[12]

At the urging of then-Army Chief of Staff, General Edward C. Meyer, General Donn A. Starry, who replaced General Depuy in 1977, began to search for ways to deal with the threat from these follow-on forces. In what became known as AirLand Battle doctrine, General Starry worked to change the Army's focus from Active Defense to a doctrine

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[9] Romjue, 15.
[10] Romjue, 16.
[11] Col Richard H. Sinnreich, US Army, Retired, interviewed by author, 27 February 1998. In 1983, Sinnreich served as a member of the Army Staff charged with reviewing implementation of AirLand Battle doctrine worldwide.
[12] Winton, 415.

espousing the counteroffensive and the engagement of second-echelon enemy forces. A corps commander who personally faced the problem of how to target Warsaw Pact follow-on forces, Starry was also concerned about the 1976 version of FM 100-5 lacking doctrinal application outside of Europe.[13] Combined with the perception that Active Defense was too defensively oriented and that it focused on obsolete Soviet tactics, he personally pushed for a new FM 100-5 that would deal effectively with each of these problems. With the active support of General Meyer, the Army published a new *Operations* manual in 1982 that appeared to address the most significant deficiencies of the Active Defense doctrine.

Although the 1976 manual was the first to introduce the term Air-Land Battle, the 1982 manual contained a more precise definition of the idea. The key concept was the joint attack on the second echelon.[14] The need to deal with multiple enemy echelons led to a renewed interest in the operational level of war. As AirLand Battle doctrine evolved into thinking at a higher level, another new *Operations* manual was published in 1986 that better captured this dramatic expansion. To help coordinate an attack on the enemy's second echelons, this manual codified the division of the battlefield into three zones: the rear battle area, which is the area to the rear of friendly forces in contact; the close battle area, which is the immediate area in which the combat formations are in close contact; and the deep battle area, which is the area beyond the close battle to the enemy's rear area.[15] Instead of the emphasis on halting the enemy at the line of contact, a key aspect of Active Defense, the AirLand Battle concept sought an integrated attack throughout the

[13] Romjue, 25.
[14] Davis, 30.

depth of the battlefield. To achieve maximum efficiency, the operational commander's scheme of maneuver needed support from coordinated air and ground power.[16] This synergistic combination helped the commander shape the battlefield by disrupting or delaying the uncommitted enemy follow-on formations. Thus, a C^2 system designed to support AirLand Battle doctrine was required to coordinate air and ground forces to maximize their destructive capability while minimizing their limitations. In the early Eighties, the Army simply lacked the organic means to accomplish this deep attack mission, hence the need for airpower and the name AirLand Battle.[17]

While the Army Staff and TRADOC were developing AirLand Battle doctrine, the Air Staff was struggling with its vision. In particular, the 1979 version of Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, was a slick-looking publication that contained virtually nothing about the employment of airpower.[18] Reflecting its own confusion following the Vietnam War, the Air Force's doctrine had changed from a warfighting manual to a procurement-based guide that reinforced a long fascination with hardware.[19] At the tactical level, however, the Air Force was on much firmer ground with its 3-1 series of manuals. These manuals helped the Tactical Air Command (TAC) fulfill its role as the combat command responsible for training and equipping the US Air Force's fighter force. Because AirLand Battle doctrine required closer cooperation with Air Force fighter aircraft, TAC assumed the lead Air

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[15] Ibid., 37.
[16] Davis, 32.
[17] Sinnreich.
[18] Dennis M. Drew, "Two decades in the Air Power Wilderness: Do We Know Where We Are?" Air University Review 37 (September-October 1986), 12.
[19] Ibid.

Force responsibility for dealing with the Army's new doctrine. A unique aspect of this relationship that must be kept in mind throughout the chapter is the disparity between TRADOC, a doctrine command, and TAC, a combat command. Besides the obvious difference in function, these two commands represented their respective services at different doctrinal levels.[20] TRADOC, after it had coordinated with the Army Staff, developed doctrine and disseminated it for the entire Army. Conversely, TAC spoke only for TAC. In the eyes of the Air Staff, what was good for Tactical Air Command was not necessarily good for the Air Force as a whole. This disparity resulted in long-term consequences that are still being addressed today. For instance, with TAC unable to speak for the entire Air Force, some of the hard-won agreements it hammered out with the Army were eventually nullified.

At the Air Staff level, the Air Force remained somewhat rudderless until the 1984 version of AFM 1-1 was published. Still flawed, it was at long last a step in the right direction for airpower.[21] Finally recognizing that "war is a multifaceted phenomenon fought in three dimensions," this manual began to assert a larger role for airpower in the conduct of the nation's wars.[22] As the capabilities of airpower expanded, Army support received less and less emphasis.

As the Air Staff focused on the wider use of airpower, TAC and TRADOC forged ahead with initiatives designed to enhance the air-ground team. By reemphasizing maneuver and battlefield depth, AirLand Battle doctrine answered the critics' main problems with Active Defense; and it satisfied TAC's focus on the operational level of

[20] Winton, 404.
[21] Drew, 12.

war. On the other hand, the expansion of the battlefield created a new source of friction between the Army and the Air Force. Specifically, both services claimed the need to control the deep battle. Although the close and the rear battles were not without controversy, arguments about who controlled the deep battle had the potential either to result in fratricide or to create a sanctuary. If soldiers and airmen planning deep attacks could not readily determine where each chain of command was in control, they would be unable to coordinate their attacks. An inability to target effectively meant an inability to shape the battlefield, which could result in the failure of a plan based upon AirLand Battle doctrine.

This potential for failure exists because of the two services' different frames of reference. Naturally, ground commanders see the deep battle in terms of its effects on the close battle. With highly trained soldiers fighting and dying at the point of contact, deep attack efforts are directed at creating favorable conditions where these troops are located. Given this need to shape the battlefield, commanders require more than indiscriminate attacks against follow-on forces. Some second echelon forces may need to move unhindered, while others are delayed, disrupted, or destroyed.[23] To orchestrate the proper effect, ground commanders frequently feel the need to synchronize air and ground power. Synchronization requires detailed planning and close coordination, both of which imply some measure of operational influence over aircraft participating in the deep battle.

In contrast, the Air Force sees the deep battle as an extension of the overall theater campaign. Considering the limited numbers of aircraft available, aircraft that may be

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[22] Ibid.
[23] Sinnreich.

flying interdiction sorties today may be flying strategic missions tomorrow. The Air Force's central tenet, "centralized control, decentralized execution," is the embodiment of this frame of reference for focusing limited airpower where it will prove most effective.[24] Allowing ground commanders influence over assets that could be used in a variety of other missions limits the flexibility of airpower. These differing perspectives illustrate one of the central difficulties of dealing effectively with the issue of deep attack. Both services' points of view have intrinsic merit and deserve consideration.

In spite of these different frames of reference, the Army and the Air Force have managed to work together effectively at various times. Relations have waxed and waned; but given enough effort and some external motivation, good results have been achieved. One such effort began during the immediate aftermath of the Vietnam War. In 1973, General Creighton W. Abrams, USA, and General George S. Brown, USAF, became the Chiefs of Staff of their respective services. Comrades in arms who fought together in Vietnam, their desire to continue the positive working environment achieved by the two services during this conflict led to what became known as the TAC-TRADOC dialogue.[25] Their desire for this dialogue led to a historic meeting between General DePuy and General Robert J. Dixon, Commander of TAC, in October 1973.[26] Additional motivation was provided by both Congressional and Nixon Administration support for a major cut in military expenditures. Faced with an uncertain future caused by the elimination of the draft on 30 June 1973 and the likelihood of reduced funding, the two services realized

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[24] Air Force Doctrine Document (AFDD) 1, Air Force Basic Doctrine, September 1997, 23.

[25] Gen Robert J. Dixon, US Air Force, "TAC-TRADOC Dialogue," Strategic Review (Winter 1978), 46.

closer coordination had become a necessity.[27] An earlier decision by General Eisenhower in 1946 to place TRADOC's predecessor, Army Ground Forces, at Fort Monroe, Virginia near TAC's headquarters at Langley Air Force Base, Virginia further facilitated this long overdue cooperation.[28] Born of both altruistic and political concerns, the TAC-TRADOC dialogue began a new era in cooperation.

On 13 June 1975, after two years of dialogue, the Army and the Air Force created the joint air-land forces application (ALFA) directorate at Langley Air Force Base. ALFA, responsible for developing the concepts and procedures for air and ground power coordination, represented an attempt to eliminate the organizational mismatch between TAC and TRADOC.[29] A true, bi-service agency, it was composed of five Army and Air Force officers each with the directorship alternating annually between the services.[30] Unfortunately, ALFA was never able to overcome one of the most serious problems concerning high-level cooperation. As part of the overall downsizing of the Army following the Vietnam War, General Abrams was forced to eliminate the field army as the Army's highest tactical echelon.[31] Ironically, the most effective agreements between the two services had been hammered out under combat conditions at the field army level. Creating a new organization equally capable of interservice command and control never achieved the emphasis it deserved. Despite this organizational issue, the TAC-TRADOC dialogue, aided by the coordinating efforts of ALFA, did produce a critical first step in

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[26] Ibid.
[27] Davis, 24.
[28] Davis, 25.
[29] Ibid., 27.
[30] Ibid.
[31] Winton, 412.

interservice doctrine with the release of FM 100-42/AFM 2-14, *Airspace Management in an Area of Operations*, on 1 November 1976. By incorporating existing practices, this manual addressed the critical problem of coordinating fixed wing airpower with artillery and rotary wing assets, albeit in a general way that required additional clarification. It also addressed the need for airspace management to be placed under the auspices of a single commander, in this case, the Air Component Commander. Designated the area air defense commander and the airspace control authority, the beginnings of a true, combined command structure can be seen. This early Army-Air Force dialogue created a strong foundation for further cooperation.

From 1973 until 1979, Active Defense drove the TAC-TRADOC dialogue. After 1979, AirLand Battle became the centerpiece of the doctrinal movement. One of the key Air Force supporters of this new doctrine was Dixon's successor at TAC, General Wilbur L. Creech, who commanded from 1 May 1978 through 1 November 1984.[32] In his earlier career, General Creech was a high level commander in Europe at the same time as General Starry.[33] Of like minds, both commanders saw the need for the Army to expand beyond corps frontal boundaries to the theater as a whole.[34] Together, they formed a strong partnership that focused on the operational level of war, which supported the idea of using airpower where it was needed most instead of being tied to a particular area or ground commander. General Creech was satisfied that the Army's evolving AirLand Battle doctrine supported the Air Force's interdiction role by pointing out that there was

[32] Gen Wilbur L. Creech, US Air Force, Retired, interviewed by author, 2 April 1998.
[33] Ibid.
[34] Ibid.

no need for TAC to change its policies as a result of the new doctrine.[35] Indeed, some officers in the Army accused General Starry of acquiescing too much to the Air Force.[36] Despite this grumbling, the Army continued to work hard on the articulation of AirLand Battle and its relationship to airpower. The active involvement of both TRADOC and TAC formed one of the strongest relationships that ever existed between the two services.

The strength of this relationship extended through the operational and tactical levels. To test its new AirLand Battle ideas, the Army used the vast desert maneuver areas located at Fort Irwin in the Mojave Desert.[37] At the same time, the Air Force created the Tactical Fighter Weapons Center at nearby Nellis Air Force Base, Nevada to provide more realistic training and to complement the Army's efforts.[38] Each instrumented range allowed enough space to test joint maneuvers during the Army's Red Banner and the Air Force's Red Flag exercises.[39] Together, these exercises and ALFA helped develop one of the most critical areas in electronic combat, the joint suppression of enemy air defenses (J-SEAD). J-SEAD became a centerpiece for cooperation, because the Army explicitly acknowledged the priority of air superiority.[40] Both services agreed that without effective enemy air defense suppression, air superiority could not be achieved. Without air superiority, airpower could not function over the battlefield; and the effort to shape the battlefield could fail.[41]

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[35] Ibid.
[36] Ibid.
[37] Dixon, 48.
[38] Ibid.
[39] Ibid.
[40] Creech.
[41] Davis, 28.

Tests were also conducted at Fort Hunter Liggett that combined A-10 Thunderbolt IIs with Army attack helicopters to form effective airpower teams.[42] Designed initially for J-SEAD, this combination of fixed wing aircraft and helicopters became known as multi-service joint air attack teams (JAATs). A JAAT normally consists of close air support aircraft with helicopters, but any fixed wing aircraft could theoretically be assigned the mission.[43] Aircraft other than CAS platforms rarely participated in JAAT exercises, however, because of the detailed planning and continuous practice this mission requires. JAATs were also the responsibility of the requesting ground commander, which introduced awkward control issues that have yet to be resolved.[44] According to General Starry, his attempt to institutionalize JAAT to include deep operations failed due to the way apportionment and allocation decisions were made.[45] In effect, he believed that the Air Force, possibly due to the unresolved control issues, would not or could not make sufficient room for JAAT in its planning cycle. Nevertheless, the teamwork required to design and test the JAAT concept represented a high point in Army-Air Force cooperation.

Another example of a high level of cooperation can be found in the announcement of the *31 Initiatives*. At a joint press conference held on 22 May 1984 by Chief of Staff of the Army, General John A. Wickham, Jr., and by Chief of Staff of the Air Force, General

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[42] Gen Donn A. Starry, US Army, transcript of oral history interview by Dr. Harold R. Winton, 13 May 1995, Air Force Historical Research Agency, Maxwell Air Force Base, Alabama, 16. General Starry was particularly enthusiastic about this concept.

[43] Field Manual 90-21/Tactical Air Command Publication 50-20, JAAT: Multi-Service Procedures for Joint Air Attack Team Operations, October 1991, 1-3.

[44] Ibid., 1-2.

Charles A. Gabriel, these initiatives were introduced as a set of memoranda intended to enhance cooperation in a variety of areas.[46] To create "joint force development of the most effective, affordable forces required for AirLand combat operations," Generals Wickham and Gabriel, classmates in the West Point Class of 1950, accepted all but one of the initiatives recommended by a working group chartered thirteen months earlier.[47] This working group, led by Colonels Raoul H. Alcala, USA, and Howell M. Estes III, USAF, initially focused on developing the terms of reference (TOR), an important characteristic upon which they based the joint development process.[48] Besides the aforementioned battlefield definition of the deep, close, and rear battle areas, the TOR set up a follow-on to ALFA, which they called the Joint Force Development Group (JFDG). The JFDG consisted of twelve field grade officers, evenly split between the Army and the Air Force, with a Colonel from each service serving as co-chairs.[49] Board members did their work quietly outside the normal staff channels, but with the blessings of both Chiefs of Staff.[50] In effect a top-down approach, the JFDG was largely successful in resisting the pressures brought to bear by each member's immediate supervisor and by the various action officers, all of whom had stakes in the outcome.[51] By successfully avoiding bureaucratic inertia, the development group lessened the pressure to over-compromise. With the authority required to rewrite air-ground relations, the JFDG ultimately advanced thirty-two initiatives. Only one initiative, a proposal to combine Army and Air Force

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[45] Starry, transcript, 16.
[46] Davis, 35.
[47] Davis, 36.
[48] Ibid.
[49] Ibid., 40.
[50] Ibid.

tactical intelligence considered too complicated, was rejected.[52] Pleased with these results, the Chiefs broadened the charter of the JFDG from a one-time effort to an annual review.[53] Of course, once each staff did receive the results, the entrenched interests immediately arose to defend their positions.

These thirty-one initiatives were intended to be the first step in an ongoing process called the joint force development process (JFDP). JFDP was designed as a "long-term, dynamic process whose objective will continue to be the fielding of the most affordable and effective AirLand combat forces."[54] To this end, the services signed a memorandum of understanding on 1 June 1984 with the intent to exchange six officers to serve on an annual exchange tour between the two service staffs.[55] Two weeks later, the Chiefs replaced the joint force planning group with a new joint assessment and initiatives office (JAIO) in their ongoing effort to implement the initiatives. This office, despite having no real coercive authority, used the support of the Chiefs to push through a number of cooperative agreements.[56] Over the next year-and-a-half, Army and Air Force elements achieved eighteen formal interservice agreements, which completed various portions of the original thirty-one initiatives.[57]

Unfortunately, this high level of cooperation was not effectively codified by both services. It quickly became an accepted part of Army doctrine, but the Air Force only

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[51] Ibid.
[52] Ibid., 44.
[53] Ibid., 45.
[54] Davis, 65.
[55] Ibid.
[56] Ibid., 66.
[57] Ibid.

implemented AirLand Battle doctrine in a few TAC publications.[58] This inability to coordinate critical service doctrine meant that each successive commander could reinterpret the relationship hammered out by Generals Starry and Creech. By the time General Robert T. Russ assumed command of TAC after the death of Creech's successor, General Jerome F. O'Malley, in a 1985 aircraft accident, the relationship began to change. Because the Army incorporated AirLand Battle into its basic doctrine and was responsible for most of the actual changes required, General Russ acknowledged that TRADOC was in the vanguard of this doctrinal movement.[59] Therefore, it became necessary to ensure that TAC's doctrine conformed to the Army's new method of fighting.[60] General Russ stated unequivocally that

> *The Army developed its warfighting doctrine and described the battlefield. It's up to the Air Force to derive aircraft requirements from those battlefield characteristics and do whatever we must to accomplish the mission the Army needs from us in support of the AirLand Battle. We've taken great care to make sure the Army hasn't had to adjust its carefully developed warfighting* doctrine to conform to Air Force limitations.[61]

With this statement, the Army took the lead for good on AirLand Battle development. As this development became more and more centered in the Army, successive members of the Air Staff began to distance themselves from what became perceived as pure Army doctrine. By the time General Merrill A. McPeak became Chief of Staff of the Air Force in 1990, each service began actively promoting separate ideas for

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[58] Ibid.
[59] Gen Robert T. Russ, US Air Force, "The Air Force, the Army, and the Battlefield of the 1990s," Defense 88 (August 1988), 13.
[60] Davis, 25.
[61] Russ, 13.

deep attack, which engendered mutual suspicion and made coordination extraordinarily difficult.[62]

Indicative of this widening gap, the concept of battlefield air interdiction (BAI) arose as the Army began to develop AirLand Battle doctrine more and more on its own. Created from ideas being floated in the Allied Forces Central Europe command, ground commanders intended BAI to be a shallower form of interdiction than preferred by the US Air Force.[63] With the support of the British, who preferred less centralized, shorter range interdiction tied to their ground force's maneuver, the US Army's enthusiasm for BAI grew.[64] Part of this enthusiasm was due to BAI requiring some operational control over Air Force aircraft, especially in designating targets, which seemed to ground commanders as the only sure way to synchronize air and ground maneuver.[65] General Russ, recognizing the increased need for coordination when supporting the Army on a nonlinear battlefield, agreed to the inclusion of BAI as a mission for TAC.[66] The Air Staff, on the other hand, began to see BAI as a threat to centralized control. Therefore, Air Force doctrine was changed to reflect that airpower is the supported mission in the interdiction role and that there is no need to subdivide this role and increase Army control. This position nullified the TAC-TRADOC agreement, eliminating BAI from Air Force doctrine. Awkwardly, it remained in North Atlantic Treaty Organization doctrine.[67]

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[62] Creech.
[63] Winton, 422.
[64] Winton, 422.
[65] Ibid., 423.
[66] Russ, 13.
[67] Winton, 423.

By July 1986, the separate doctrinal paths taken by each service were beginning to place strains on the earlier TAC-TRADOC gains. These strains were further compounded by the JAIO's lack of coercive authority, which failed to institutionalize cooperation.[68] The future of cooperation between the Army and the Air Force was quietly left in question, even though a number of bi-service projects continued.[69] After years of striving for increased cooperation, the momentum of the early years had passed; and it was left to a new generation to enhance Army-Air Force relations in an increasingly contentious environment. Coincidentally, 1986 was also the year Congress passed the Goldwater-Nichols Department of Defense Reorganization Act. The new law's key change in joint doctrine development was vesting overall responsibility for the development of joint doctrine with a single person, the Chairman of the Joint Chiefs of Staff.[70] Although the law has taken years to implement significant changes, the immediate effect was sufficiently profound to have left then-current efforts to improve coordination in question. With the responsibility of the individual services for "jointness" lessened by the new law, the Goldwater-Nichols Act began the process anew.

While waiting for the new law to take full effect, both services struggled over what AirLand Battle doctrine meant in terms of force requirements and command issues. For the Army, this struggle meant coping with how to synchronize assets it did not control with the introduction of its new, longer-range weapon systems. When first introduced by General Starry, the deep battle part of AirLand Battle doctrine began with a calculus that

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[68] Davis, 71.
[69] Winton, 425.
[70] Joint Publication 1, Joint Warfare of the US Armed Forces, 10 January 1995, 83.

accounted for the basic structure of the Air Force.[71] Simply put, a limited number of airframes and weapons could attack only a limited number of targets. Armed with this calculus, the rationale was developed for appropriate surveillance, target acquisition, and long-range weapon systems under the command of a corps or joint force commander which could be linked directly to efforts to shape the battlefield.[72] From the Army's point of view, the limited number of Air Force airframes and the need to respond in a timely manner led it to search for organic solutions rather than support additional aircraft for the Air Force. One such solution became the Army tactical missile system (ATACMS), a long-range surface-to-surface missile system. Another solution led to an increase in attack helicopters to provide responsive airpower. Responding to the confusion over combined deep attack, the Army sought its own answers.

The Air Force responded in a similar fashion. As budgetary pressures increased, Congress and the Department of Defense forced the Air Force to do more with less. With airpower already limited, the Air Staff believed that a multi-role aircraft was preferable to a specialized airframe. Aircraft such as the A-10, used almost exclusively for close air support, became relatively expensive. Therefore, air planners emphasized interdiction aircraft such as the F-15E Strike Eagle, which was capable of a wide variety of day or night roles. To this formidable aircraft, the Air Force added precision guided munitions (PGMs) to create a potent all-weather interdiction capability. Long considered a proprietary mission for the Air Force, the Air Staff responded to the confusion over deep attack by considering it the exclusive province of airpower. The Air Force viewed Army

[71] Gen Donn A. Starry, US Army, Retired, interviewed by author, 13 February 1998.

inroads into deep strike both as an institutional threat and as a challenge to the centralized control of airpower. One bright spot in coordination, the joint surveillance and target attack radar system (J-STARS), an airborne ground control radar, has become a proven success. On the other hand, without a true service proponent, such joint systems face an annual struggle at budget time. As the current decade dawned, each service was cooperating less and doing more individually.

Given this background of hot and cold cooperation, there is little surprise that AirLand Battle Doctrine was never accepted by the Air Force. At times, certain elements of the Air Force did try to cooperate in the creation of a true air-ground combat team, but neither service was willing to compromise on long-cherished traditions of exclusive control to permit that result. Still, those moments when cooperation was active and genuine did produce workable doctrine and strong evidence of teamwork. The next war will undoubtedly be nothing like previous wars in which the US relied on time and necessity to forge an air-ground combat team. Therefore, General DePuy's realistic notion of a "come-as-you-are war" requires that the Army and the Air Force arrive in theater already working effectively as a team.

Toward this end, the evolution of AirLand Battle doctrine provides mixed support for the five proposed characteristics. To bolster the idea that terms should be standardized, the TAC-TRADOC dialogue was a strong source of common terminology. From the creation of ALFA to the development of early joint and combined doctrine, both services successfully searched for common ground. General Creech was pleased to find that the early development of AirLand Battle doctrine did not require any doctrinal changes for

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[72] Ibid.

TAC, which implies that the developers solved terminology problems early.[73] To create the *31 Initiatives*, then-Colonels Alcala and Estes also emphasized defining the terms of reference.[74] This common background of terms and definitions laid the foundation for a cooperative venture between the Army and the Air Force that resulted in numerous agreements. Because each service possesses a unique vision, standardized terminology seems to be a necessary first step to overcoming basic institutional differences.

The second characteristic, achieving the full potential of combined effects, receives varying levels of support. During the early development of AirLand Battle doctrine, General Starry supported the joint air attack team concept that combined fixed wing aircraft with Army helicopters.[75] The major drawbacks to such operations have been complexity and control issues. The detailed planning and execution needed to make a JAAT mission successful requires continuous practice.[76] Amidst the hectic pace of daily operations, the services have generally found that acquiring sufficient time and money for such practice has been difficult. The unresolved control issues provided further difficulties, causing JAAT operations to receive less interservice support as time passed. On the Air Force side, General Russ fully cooperated with both AirLand Battle doctrine and battlefield air interdiction. As a result, ground commanders were initially optimistic about Air Force support for synchronizing air and ground forces. Yet, as the Air Staff began to see a much larger role for airpower, limiting the bulk of Air Force assets to supporting ground commanders seemed to them to be anachronistic. Synchronization in

[73] Creech.
[74] Davis, 36.
[75] Starry, transcript, 17.
[76] Starry, transcript, 16.

deep attack could still be achieved, but from the Air Force's point of view, the head of the air component should be the responsible commander. The initial effort required to develop the JAAT and BAI concepts is clear evidence of teamwork, but the inability to institutionalize these ideas points out the differences in opinion that have made combined deep attack such a contentious issue. Despite this mixed support, teamwork provides synergistic advantages that argue for the inclusion of this characteristic in an analytical framework.

Mutual protection of air and ground forces is another significant element of AirLand Battle doctrine. With the release of FM 100-42/AFM 2-14, *Airspace Management in an Area of Operations*, the air component commander was designated the area air defense commander and the airspace control authority. Vesting this responsibility in a single commander strengthened air defense coordination by eliminating multiple command relationships. On offense, the joint suppression of enemy air defenses has long been considered a centerpiece of cooperation. The tests at Fort Hunter Liggett confirmed that a combination of fixed wing aircraft and helicopters could achieve effective suppression.[77] Pop up attacks by A-10s would momentarily occupy the attention of the surface-to-air missile (SAM) threat operators, then disappear behind hills and trees. Confused, the enemy radar operators would then focus on searching for the hidden A-10s. Lying in wait until this moment, attack helicopters would then rise and destroy the threats before they could react to the new attack.[78] Through this teamwork, the Army achieved freedom of maneuver as the Air Force exercised its air superiority, which was an important

[77] Starry, transcript, 19.
[78] Ibid., 17.

consideration for the early support of TAC. Overall, mutual protection has become a win-win effort that must be included in an analytical framework.

Less direct support is provided for the final two characteristics. According to General Creech, the Army and the Air Force put a great deal of effort into the search for the capability to identify friend from foe.[79] Unable to develop a system reliable enough to eliminate the possibility of fratricide, AirLand Battle doctrine relied even more heavily on the establishment of a clearly-defined fire support coordination line. When AirLand Battle doctrine was first being considered, General Starry acknowledged that the question of who would control the airspace over the deep battle was not sufficiently addressed. At the time, the ability of the Army to strike deep was still largely on the drawing board, so doctrine left the final decision about such weighty matters as where to place the FSCL in the hands of the operational level commander.[80] As the primary air-ground coordination measure, the placement of the FSCL has a great deal to do with avoiding fratricide and eliminating sanctuaries. Attacks inside the FSCL must be fully coordinated, but outside this line, the potential for confusion exists as Army long-range systems vie with Air Force aircraft for the use of the airspace over the enemy. Yet, the FSCL by itself is an incomplete solution unless backed by a command and control system capable of coordinating fully offense and defense on both sides of the line. Until this issue is settled, the potential for fratricide and the creation of an undesirable seam have increased.

Despite this mixed support for the proposed characteristics of an analytical framework, the evolution of AirLand Battle doctrine provides some justification for the

[79] Creech.
[80] Starry, interview.

incorporation of all five proposals. The most direct evidence is provided both for standardizing terms of reference and providing mutual protection. The next characteristic, achieving the full potential of combined effects, receives varying levels of support. When the services are willing to emphasize the team concept, workable doctrine is developed. Over time, however, the emphasis appears to have shifted to parochial solutions. In support of the final two characteristics, AirLand Battle doctrine provides only indirect evidence. To mitigate fratricide and eliminate sanctuaries, the debate on the placement of the FSCL must be resolved. As this study progresses, additional support for the inclusion of all five proposals will be sought from another nation's experience.

Chapter 3

The Bekaa Valley Operation

While the US Army and Air Force were developing AirLand Battle doctrine, the Israeli Defense Force (IDF) was actually using its doctrine. Provoked by a hostile Palestine Liberation Organization (PLO) conducting raids and reprisals along Israel's border with a deteriorating Lebanon, the Israelis struck back against their adversaries on 6 June 1982. Called "Peace for Galilee," this operation's goals were to destroy the PLO as a militant force and to neutralize Syrian assets in Lebanon.[1] Initially, the invasion of Lebanon was considered a resounding success. Part of this initial success was the spectacular victory in the Bekaa Valley. One of the first real tests of western-style combined arms employment in a modern electronic warfare (EW) environment, the dominance of the IDF over the Soviet-backed Syrian armed forces was a boon to western tactics and a blow to Soviet prestige.[2] Unfortunately, the Israelis followed this success by pushing onward to Beirut. Ultimately going a "bridge too far," Israel became mired in a long-term struggle that left it strategically weaker than when it started the operation.[3]

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[1] Benjamin S. Lambeth, Moscow's Lessons from the 1982 Lebanon Air War (Santa Monica, CA: RAND, 1984), 4.

[2] A. Peleg, "Electronic Sophistication Behind the Destruction of Syrian Rockets in Lebanon," Tel Aviv MA'ARIV, JPRS/MENA, No. 81555 (Washington, D.C.: 17 August 1982), 96.

[3] Avner Yaniv and Robert J. Lieber, "Personal Whim or Strategic

Essentially, the Israelis showed their hand to the world without gaining any real security and allowed their enemies time to modernize their weaponry for future confrontations.[4]

In the attempt to unravel the reasons behind Operation Peace for Galilee, Israel's need to restrict access to operational information prevents full disclosure of all details of this campaign. The conclusions drawn from this case are therefore constrained by a lack of access to all relevant evidence. From public sources, it is clear that in the immediate aftermath of the 1973 Yom Kippur War, the Israelis were not the only side to claim victory. The Arabs regained prestige by partially erasing the shame of the 1967 defeat. After turning the tables on Israel in 1973, the balance of power shifted slightly away from the previously overconfident IDF. In response, Israel vowed never again to be caught unaware and embarked on an ambitious upgrading of its forces, especially in electronic combat. For their part, the Arab nations were relatively pleased with their Soviet-supplied ATGMs and SAM batteries that had surprised the IDF. Their response to the 1973 war was to expand the quantity and increase the quality of their Soviet weaponry.

Against this backdrop of a Middle Eastern arms race, the country of Lebanon began to implode. In southern Lebanon, various PLO factions combined to drive out many of the native Lebanese, establishing a secure base from which to support worldwide terrorism and challenge Israeli border security. In northern Lebanon, the Druze, an Arab faction, fought with Christian groups for control of the Lebanese government. During the winter of 1975-1976, what remained of the government in Lebanon allegedly invited the

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Imperative? The Israeli Invasion of Lebanon, International Security (Fall 1983), 141.

[4] Peleg, 96.

Syrians into the conflict to effect a compromise.[5] Ever alert for an opportunity to expand his influence, President Hafez al-Assad of Syria surprisingly supported the main Christian Phalange Party.[6] Thought to be informally allied with the Israelis, the Christians may have served as a temporary brake on Druze and PLO ambitions.[7] The Syrians moved quickly to secure northwest Lebanon, especially the Bekaa Valley, as a base for their operations. The stage was now set for the drama to unfold.

With the Syrians involved on the Christian side, the Israelis faced a strategic dilemma. On the one hand, if they accepted Syrian involvement in Lebanon, it would weaken the PLO.[8] The problem was then having a powerful, potential enemy in virtual control of Lebanon. If the Israelis opposed Syrian involvement, it would weaken their erstwhile Christian allies and support the PLO.[9] With neither choice palatable, the Israelis attempted to compromise by limiting Syrian involvement. Publicly, they demanded that no Syrian SAMs or artillery be positioned within range of the Israeli border.[10] Secretly, Israel and Syria had agreed in 1976 on a "status quo" arrangement for mutual non-interference.[11] In the meantime, the PLO continued its terrorist activities.

As the PLO worked to strengthen its base, it posed two major problems for the Israelis. First, its support for international terrorism was boosted by having a secure base of operations. By equipping and training other terrorist factions, such as the Baader-

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[5] Yaniv, 125.
[6] Brig Gen Ephraim Segoli, Israeli Defense Force, Retired, The Israeli Lebanese Dilemma: Israeli Airpower and Coercive Diplomacy Lebanon (Maxwell Air Force Base, AL: School of Advanced Airpower Studies, 1998), 3.
[7] Ibid.
[8] Yaniv, 127.
[9] Ibid.
[10] Ibid., 128.

Meinhof gang, the Irish Republican Army, and the Japanese Red Army, it built a worldwide terrorist infrastructure with which to challenge Israel anywhere they saw fit.[12] The other, more immediate, problem was border security. Through bloody raids and random firings of World War II-era Katyusha surface-to-surface rockets against Israeli border towns, fear and unrest began to set in among these northern settlers.[13]

The first major attempt to deal with the PLO threat was known as Operation Litani. In March 1978, as a direct response to a PLO attack on an Israeli bus, the IDF attempted to drive the PLO north of the Lebanese river Litani to secure its borders.[14] Using a relatively small force in a limited operation, the IDF was unable to trap the PLO.[15] As Operation Litani bogged down, the Israeli presence in southern Lebanon quickly became a political disaster. The United Nations (UN) viewed the Israelis as aggressors, especially when an Israeli Air Force attack on PLO targets in Beirut killed both terrorists and civilians.[16] These civilian casualties prompted the UN to put together a peacekeeping force known as the UN Interim Forces in Lebanon (UNIFIL).[17] To the Israelis, the situation became doubly frustrating as the small UN force was unable to stop PLO activity while it prevented effective Israeli reaction.[18] UNIFIL made the Israelis even more resolved to use massive force at the next opportunity.

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[11] Segoli, The Israeli Lebanese Dilemma, 3.
[12] Yaniv, 120.
[13] Ibid.
[14] Segoli, The Israeli Lebanese Dilemma, 3.
[15] Yaniv, 130.
[16] Segoli, The Israeli Lebanese Dilemma, 3.
[17] Yaniv, 130.
[18] Ibid.

Not surprisingly, the next opportunity arose sooner rather than later. By 1981, the Syrians had mended fences with their Muslim brothers and switched from supporting the Christians to supporting the Druze and the PLO.[19] In an apparent attempt to consolidate their hold on north and west Lebanon, Syria stepped up its activities. In the Bekaa Valley, the Syrian armed forces deployed several of their latest mobile SAMs, known by the NATO code name SA-6 Gainful, and began arming the PLO as a conventional force.[20] Along with this increase in the conventional threat, the PLO continued its terrorist activities. On 3 June 1982, a PLO group attempted to assassinate the Israeli Ambassador to London.[21] The attack left him paralyzed. In response, the Israelis destroyed a PLO ammunition dump located in a Beirut soccer stadium.[22] The PLO escalated further by shelling Israeli civilians in the Galilee.[23] When Syria began to reinforce its SAM batteries in the Bekaa Valley, the Israelis had reached the limit of their endurance. On 6 June 1982, Operation Peace for Galilee was launched.

Prime Minster Menachem Begin's goals for this operation were overly ambitious. Along with the destruction of the PLO and the neutralization of Syrian assets in Lebanon, he sought the occupation of the strategic Beirut-Damascus road and the encirclement of Beirut itself to ensure the demise of the PLO.[24] This final objective would be the undoing of the operation, and it led to a great deal of soul searching. Despite the outcome, Peace for Galilee was initially a rational, measured response to an untenable position.

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[19] Yaniv, 132.
[20] Ibid., 133.
[21] Lambeth, 4.
[22] Ibid.
[23] Ibid.
[24] Amos Perlmutter, "Begin's Rhetoric and Sharon's Tactics," Foreign

Essentially, the Israelis were faced with three options for how to deal with the Lebanese situation. They could have chosen to ignore the rise in both the conventional and the terrorist threats, but inaction was domestically unacceptable.[25] The terrorized citizens of Galilee were on the edge of panic. A second option would be a limited action, but that option was ruled out following the dismal results of Operation Litani.[26] The final option was a massive response, even though it would mean a clash with Syria.[27] This option had greater appeal when the regional and international political scene was considered. Syria was effectively isolated from the rest of the Arab world by the Israeli-Egyptian peace agreement, poor relations with Jordan, and the Iran-Iraq War.[28] Internationally, the Reagan Administration publicly supported Israel more readily than had the Carter Administration. All of these factors and the Soviet Union's preoccupation with Afghanistan made 1982 a propitious time for a massive strike.[29]

Due to the mountainous terrain, the IDF struck northward in a two-pronged thrust. The western arm moved quickly up the coastal plain against decidedly inferior PLO conventional forces following two days of intense interdiction and close air support.[30] The eastern arm moved almost as fast even though it was forced to deal with the bulk of the Syrian forces.[31] By just the third day of the invasion, the formidable Syrian defenses arrayed in the Bekaa Valley were attacked and virtually eliminated by a combined arms

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Affairs, Fall 1982, 69.

[25] Yaniv, 118.

[26] Ibid.

[27] Ibid.

[28] Ibid., 135.

[29] Ibid.

[30] Brig Gen Ephraim Segoli, Israeli Defense Force, Retired, interviewed by author, 5 March 1998.

assault that stunned the defenders. This long and narrow valley was a tough place to defend against attacking aircraft, because the surrounding mountains blocked the defenders' line of sight. Taking advantage of this terrain, the Israelis subjected the valley to an intense attack from a broad spectrum of weapons. Made painfully aware of the lethality of SAMs in an integrated air defense system (IADS) in 1973, the Israelis planned a highly choreographed series of attacks with maximum electronic warfare support that rendered Syrian SAM operators defenseless. At the time of the Bekaa Valley success, there were 122 defense electronics companies in Israel alone.[32] Combined with US and other Western technology, the IDF's suite of electronic assets provided a decisive edge against the Syrians' missiles.

The Israelis began their deep attack operations in the Bekaa Valley with highly selective jamming from equipment located on board a Boeing 707 flying just off the coast of Lebanon.[33] By using a sophisticated technique to avoid self-jamming, the big Boeing severely degraded the early warning radar and the communications of the Syrian integrated air defense system. [34] This electronic attack of their command and control forced both Syrian MiG fighters and individual SAM operators to search for targets autonomously amidst the unfavorable terrain. While the Syrian radars were actively degraded, the Israelis also employed four varieties of remotely piloted vehicles (RPVs) to confuse the defenders. Two varieties of these RPVs created radar returns the size of

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[31] Ibid.

[32] Paul S. Cutter, "EW Won the Bekaa Valley Air Battle." Military Electronics/Countermeasures 9, no. 1 (January 1983), 106.

[33] John V. Cignatta, "A US Pilot Looks at the Order of Battle, Bekaa Valley Operations." Military Electronics/Countermeasures 9, no. 2 (February 1983), 107.

attacking aircraft, which prompted the Syrian SAM operators, displaying poor firing discipline, to begin firing missiles at the incoming drones.[35] Other Israeli aircraft, one of which may have been another specially configured

Boeing, electronically pinpointed the location of these SAM batteries while the two other varieties of RPVs, equipped with reconnaissance cameras, visually confirmed their presence.[36] Provided with real-time, accurate target locations, the IDF next turned to actual destruction. Before aircraft were airborne, Israeli ground forces were pushing artillery and Wolf ground-launched battlefield missiles rapidly forward to destroy SAM sites in the southern part of the valley.[37] As these ground assets began to engage, F-4s armed with radar-homing Shrike and Standard ARM missiles attacked the SAM radars farther to the north.[38] Having already neutralized a large number of the SAMs, the next to enter the valley were flights of A-4s, F-4s, and F-16s loaded with conventional cluster bombs and Maverick electro-optically guided missiles to complete the destruction of any remaining radars and their associated control vans.[39] These attackers used ground-hugging ingress routes and pop-up tactics to surprise the remaining missile batteries. The entire battle took only ten minutes, and the Israelis suffered no losses.[40] Furthermore, no seam developed between air and ground assets that could have adversely affected targeting. The next day, the Israelis successfully repeated the attack to destroy the two

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[34] Ibid.
[35] Lambeth, 7.
[36] Lambeth, 7.
[37] Ibid.
[38] Ibid.
[39] Ibid.
[40] Ibid.

remaining sites of the original total of nineteen SA-6s, plus some additional SA-2 and SA-3 sites.[41]

While the IDF was punishing the Bekaa Valley defenders, the Syrian Air Force attempted to mount a defense of its new territory. The Israeli Air Force (IAF) waited patiently for them to arrive. Employing several E-2C Hawkeye airborne warning and control systems (AWACS) and reconnaissance RPVs to monitor Syrian airfields, the IAF's fighters were quickly in position to attack by the time the beleaguered Syrians arrived.[42] Already confused by the jamming of their ground control frequencies, the Syrian pilots often flew in circles while desperately waiting for their controllers to vector them.[43] Using all-aspect, air-to-air missiles, mainly the shorter range, infrared-guided AIM-9 Sidewinder to avoid shooting friendly aircraft, Israeli pilots ended the Syrians' confusion by shooting them out of the sky.[44] Attacked from the side in a beam aspect attack that Soviet-supplied radar warning receivers could not detect, the Syrian pilots suffered the loss of thirty-eight of their comrades during the two day battle.[45] Again, the IAF experienced no losses.[46]

Within one week of fighting, the IDF had achieved all of its goals except the controversial surrounding of Beirut.[47] In hindsight, the Israelis should have stopped at the Beirut-Damascus road; but the political decision was made to continue. Prime Minister Begin and his Defense Minister, Ariel Sharon, were possibly influenced by the initial

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[41] Ibid., 8.
[42] Lambeth, 8.
[43] Ibid., 9.
[44] Ibid.
[45] Ibid.
[46] Ibid.

welcoming of the Israelis as liberators by native Lebanese with their traditional rice and flowers.[48] The Lebanese had suffered under PLO occupation, and the Begin government hoped to install a Christian-led government in Lebanon that would be willing to follow Egyptian President Anwar Sadat's example of peace in spite of his recent assassination.[49] The hoped for result did not materialize. In the meantime, the IDF successfully drove the PLO out of Lebanon to Tunisia, but it became a Pyrrhic victory.[50] Although settlers in Galilee were initially relieved, the rise of the Islamic Jihad, or Hezbollah, would eventually become a significant terrorist threat. Created from the Iranian Revolutionary Guards sent to Lebanon in response to the invasion, their base of power was located ironically in the Bekaa Valley.[51] As for the rest of Israel's ambitions, resistance to the occupation quickly stiffened and Operation Peace for Galilee degenerated into a long-term quagmire that still exists today. It also prolonged the lack of peace between Syria and Israel. As mentioned earlier, this state of tension prompted the Soviets to begin upgrading Syria's defenses in response to the Israeli tactics, creating the potential to eventually degrade Israel's overall strategic position.

On the operational and tactical levels, however, the invasion of Lebanon was more fruitful. Over the Bekaa Valley and southern Lebanon, the IDF achieved complete air superiority while experiencing the smallest loss ratio of any of its previous wars.[52] Overall, the Israelis downed ninety-two enemy aircraft, including six attack helicopters,

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[47] Segoli, The Israel Lebanese Dilemma, 5.
[48] Ibid.
[49] Ibid.
[50] Yaniv, 141.
[51] Segoli, The Israel Lebanese Dilemma, 5.
[52] Yoram Inspector, "Complete Air Superiority." Tel Aviv BAMAHANE,

for the loss of only one of their own.[53] In addition, air and ground power achieved unprecedented cooperation. At a press conference following the Bekaa Valley battle, the Israeli Air Force commander, Major General David Ivri, said:

> *The close and massive coordination between the ground forces and the air force in Peace for Galilee created a new dimension of cooperation. The air force destroyed hundreds of vehicles, armored vehicles and tanks, gun positions, and so forth and in this way supported our forces in their advance and prevented grinding ground battles.*[54]

Although students of this conflict must be careful to note the unique aspects of the Israeli success when drawing conclusions, important lessons can still be learned. Among the unique aspects of the Bekaa Valley, the IDF faced a well-defined, limited battle area in which it enjoyed several years of intelligence gathering prior to initiating hostilities.[55] Also, the Syrians attempted to save time and money when deploying their SA-6s by generally placing them in fixed, easily identifiable sites, negating their inherent mobility.[56] Finally, the IAF enjoyed superiority in numbers as well as in overall technology.[57] Given these unique aspects, the real lesson to be learned from this deep attack on the Bekaa Valley is that winning requires the maintenance of operational initiative. To maintain this initiative, a winning force must focus clearly on leadership, organization, tactical acumen, and adaptability.[58]

JPRS/MENA, No. 81880 (Washington, D.C.: 29 September 1982), 82.

[53] Peter Helman, "Lebanon Proved Effectiveness of Israeli EW Innovations," Defense Electronics 14, no. 10 (October 1982), 41.

[54] Inspector, 85.

[55] Lambeth, 10.

[56] Ibid.

[57] Ibid.

[58] Ibid., 31.

The IDF embodied these characteristics as a direct result of the 1973 war. In particular, the IAF improved their force by distilling important reforms from the volumes of critiques solicited from pilots following the war. The IAF commander at the time, Major General Beni Peled, and his deputy, General Ivri, also paid attention to criticisms from ground commanders.[59] Their response involved tightening the IAF's centralized doctrine by combining the strategic control of all air-ground operations, even CAS, from their command bunker located beneath Tel Aviv. Known as the "Hole," all IDF higher command functions were located in this bunker complex.[60] Joint planning was naturally facilitated by this organizational arrangement, which extended down through the regional commands.[61] Backed by a computerized system for controlling large numbers of aircraft and an extensive communications array, IAF commanders could coordinate with their counterparts in the ground forces while still maintaining effective control over their limited airpower.[62]

A high level of coordination is essential when conducting a joint deep strike. As depicted in the Bekaa Valley battle, both ground and air assets attacked in this narrow valley simultaneously. Israeli commanders designated a safety line that helped separate air assets from artillery and missiles.[63] South of this line, the ground forces were free to destroy Syrian targets at will. North of this line, airpower attacked free from the interference of friendly surface fire. The IDF placed this coordination line at a logical

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[59] Ehud Yonay, No Margin for Error: The Making of the Israeli Air Force (New York: Pantheon Books, 1993), 366.
[60] Yonay, 342.
[61] Segoli, interview.
[62] Yonay, 366.
[63] Segoli, interview.

point between the preponderance of assets.[64] With little gnashing of teeth, their forces achieved synchronization throughout the valley, and the results were impressive. Although by no means perfect, the IDF's joint, centralized control worked well for a relatively small force with an unambiguous area of responsibility. The Bekaa Valley success effectively closed the book on an IAF still reeling from the losses suffered in 1973. In that war, "the missile bent the wing of the airplane."[65] In 1982, the results were reversed.

In terms of providing support for the five proposed characteristics of an analytical framework, the Bekaa Valley operation contributes direct evidence for all but one of the proposals. Only indirect evidence is available for the first characteristic. The Israeli Defense Force initiated no particular effort to standardize terminology, but the effort to integrate its army and air force into a single command structure implied the same result. Although disagreements over strategy and tactics occurred, they appear not to have been based on confusion over basic terminology.[66]

Direct evidence is available for all four remaining proposals. To achieve the full potential of combined effects, the IDF subjected the Syrians to a well-orchestrated combined arms assault that rendered the Syrians' integrated air defense system helpless. Precise planning was required to rush artillery and battlefield missiles forward to coincide with the deep attack of aircraft, and the combined headquarters of the IDF facilitated this result. Next, the mutual protection of their air and ground forces was achieved through a combination of electronic combat, RPVs, and artillery and missile support. Again, the

[64] Ibid.
[65] Yonay, 355.

IDF required close cooperation to bring together a variety of weapon systems and organizations to create the necessary synergistic effects.

This level of cooperation extended from the IDF's headquarters in the Hole down through their regional commands. Clearly understood objectives and well-defined procedures were a hallmark of the Bekaa Valley operation. The placement of their safety line occurred where the preponderance of forces shifted from one service to another, and the control of the airspace over the enemy was clear to all participants. This delineation helped mitigate fratricide and eliminated the creation of an enemy sanctuary. A highly integrated C^2 system helped define the Israeli boundary between air and ground power without creating a sanctuary for Syrian forces. All the enemy SAM systems were targeted in a speedy attack that lasted only ten minutes, and the Israelis suffered no losses. A command and control system capable of this level of coordination deserves a close study.

This examination of the Israeli experience during the Bekaa Valley operation has provided direct support for four of the five proposals. The Israeli command and control system focused on achieving Israel's desired operational objectives, and the results speak well for a C^2 system that possessed a majority of the proposed characteristics. Next, this study synthesizes the historical cases to summarize the evidence for the proposed analytical framework.

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[66] Segoli, interview.

Chapter 4

An Analytical Framework for Deep Attack

This study initially proposed five characteristics as necessary elements of an analytical framework for deep attack:

1. Standardize terms.
2. Achieve full potential of combined effects.
3. Provide mutual protection.
4. Mitigate the possibility of fratricide.
5. Eliminate the creation of seams.

A close examination both of the evolution of AirLand Battle doctrine and the Israeli operations in the Bekaa Valley sought sufficient evidence for each of the five proposals. The resulting conclusion is that sufficient evidence exists to support the contention that these five characteristics are necessary elements of an analytical framework.

The first proposal is to standardize terms of reference. The Army and the Air Force, each with a different culture, have developed unique terms as well as new definitions for old terms. As an example, measures of merit, which are used to determine the success of particular tasks, may have a wide variety of meanings that depend largely upon the orientation of the planners developing them. What has meaning to a ground planner may or may not have the same significance to an air planner. To combine deep attacks from both services successfully, the very definition of that success should be agreed upon beforehand.

As support for this proposal, the AirLand Battle case provides the only direct evidence. The TAC-TRADOC dialogue sought the common ground necessary to forge combined doctrine. The dialogue resulted in agreements concerning airspace control and J-SEAD that helped further the cause of combined deep operations. Colonels Alcala and Estes also created a solid foundation upon which to anchor the *31 Initiatives*. These initiatives, in turn, led directly to eighteen interservice agreements. As a place to start, the standardization of terminology avoids misunderstanding caused by poor communication and creates a firm base upon which to build more substantive agreements in the future.

The indirect evidence supplied by the Israeli case is also compelling. A more fully integrated force structure, the IDF study supports the contention that the devil is in the details. Close coordination requires precision in language. A communiqué to various subordinate commanders should mean the same to all. When crossing between service cultures, this result becomes even more important. As a starting point, standardizing terms seems to be a logical choice for coordinating doctrine. Thus, positive evidence from these two cases argues well for inclusion of this proposal in an analytical framework.

The second proposed characteristic is to achieve the full potential of combined effects. Although each service today seems intent on following its own path, it is highly unlikely that one service will fight a major war without the other for the foreseeable future. Therefore, an effective command and control system must be able to combine air and ground power into a synergistic combination that can achieve the JFC's objectives.

The AirLand Battle case began with direct support for this proposal, but as the services started to diverge in their thinking, the support waned. JAAT failed to be

institutionalized, and Air Force support for BAI never materialized. Nevertheless, a proper C^2 arrangement should be able to account for a variety of weapon systems controlled by different elements and remain flexible enough to ward off attacks against the boundaries between these elements. It is at these boundaries where simply dividing territory between the Army and the Air Force would be least effective. Some method of controlling attacks on both sides of common boundaries and lines is needed to prevent them from becoming a weak link. This need for effective control throughout the battlefield implies that solving the placement of the FSCL is but one step to forming a complete air-ground team.

During the Bekaa Valley operation, the IDF provided a positive example of a relatively strong command and control system. Collocated staffs in the Hole in Tel Aviv began close coordination that extended through the regional commands. Syrian responses to the Israeli attacks were quickly assessed and appropriate measures were taken. Even when these responses straddled the safety line, the combined regional commands, in close coordination with Tel Aviv, quickly pinpointed commanders able to respond without regard for ownership. The potential for creating seams and weak boundaries was largely eliminated by a C^2 system focused on achieving combined effects rather than promoting an individual service's solution. Therefore, the evidence supports the inclusion of combined effects as the goal of a viable C^2 system.

The third proposed characteristic is mutual protection of air and ground forces. Both cases provide direct evidence of the importance of such a proposal. From the early tests at Hunter Liggett to today's incorporation of J-SEAD in its own joint doctrine manual, the importance of achieving battlefield air superiority is rarely questioned. Considered

the centerpiece of cooperation during the development of AirLand Battle doctrine, mutual protection in the form of the joint suppression of enemy air defenses was also a critical element of the Israeli operation in the Bekaa Valley. Freedom of maneuver both for ground and air assets should not be taken lightly. Of all the proposals, the available evidence clearly supports this characteristic. Its inclusion in an analytical framework is clearly justified.

The fourth proposed characteristic is mitigating the possibility of fratricide. Although the low number of overall casualties on the coalition side magnified the effect of fratricide during the Gulf War, organizations cannot long endure self-destructive tendencies. Because no system can be made perfect, any machine or plan that purports to identify enemy targets must go to great lengths to account for the presence of friendly troops as well. Currently, the long-range systems in use both by the Army and the Air Force require voluminous rules of engagement (ROE) that must be followed closely to prevent fratricide. As both services work towards combining their efforts, the ultimate C^2 arrangement must be able to identify friend from foe and be flexible enough to respond appropriately to potential lapses in the ROE.

AirLand Battle doctrine provides only indirect support for this proposal. Having inadequately addressed the control of airspace over the enemy, the originators of this doctrine argued that delegating the responsibility to the JFC was a sufficient answer. Despite the apparent inadequacy of this solution, the commanders believed that the traditional placement of the FSCL would be enough to mitigate fratricide. What they did not take into account was an increase in the use of long-range patrols, special forces, ATACMS, attack helicopters, and Air Force aircraft in virtually the same area at virtually

the same time. What once was primarily the mission of the Air Force alone is now also the province of a high-technology Army. The current C^2 system was not designed to accommodate this increased participation by Army units. Placement of the FSCL is the only major control measure designed to mitigate friendly fire incidents in deep operations, but the lack of authoritative guidance and the continuing debate over its actual use have lessened its appeal.

In contrast, the IDF's more integrated organization naturally helped mitigate the possibility of fratricide. Closer cooperation from the beginning meant that friendly forces could be more easily identified. Nevertheless, instances of fratricide can still occur. A successful system must be able to positively identify friend from foe and be able to communicate the correct information to all friendly elements. Although J-STARS holds the promise of such a system, it has not yet achieved this level of command and control operationally. Thus, despite the lack of direct support, enough compelling indirect evidence exists to argue for the inclusion of this proposed characteristic in an analytical framework. In today's environment, no commander can accept fratricide as simply the cost of doing business.

The final proposed characteristic is the elimination of seams. A result of the debate over control of the airspace over the enemy, these enemy sanctuaries have the potential to disrupt completely a commander's attempt to shape the battlefield. As mentioned earlier, shaping the battlefield involves delaying, disrupting, or destroying some elements of the enemy's second echelon while permitting others to move unhindered. A compelling negative example was provided during Operation Desert Storm. As significant elements of the Republican Guard escaped, neither the Army nor the Air Force targeted effectively.

Instead, each service sought control of the airspace over the fleeing enemy at the expense of teamwork. Because the Iraqis were in full retreat at the time, little damage occurred to the coalition tactically. Strategically, however, the presence of both United Nations' sanctions and US troops in the region to this day are evidence that this seam was far more costly.

AirLand Battle doctrine provides only indirect support for this criterion. During its original development, the services gave insufficient attention to the issue of control. They deemed the traditional solutions adequate. A fire support coordination line placed approximately twenty-five kilometers beyond the close battle with the air component providing control beyond the line worked well until the advent of long-range Army systems such as ATACMS. Today, a competition exists for control of this distant airspace that current doctrine does not answer adequately. Giving the joint force commander the prerogative to decide may or may not provide the best solution. Whatever the outcome of the JFC's decision, this system has resulted in pitting the Army's view against the Air Force's in a never-ending argument. Contemporary doctrine should address a combined and ultimately joint command and control solution that will help eliminate this cause of today's acrimonious debate.

The more integrated IDF again provides a better example of this proposed characteristic. Through joint planning, the IDF's version of the FSCL, the safety line, is placed where the preponderance of force changes from the ground commander to the air commander. This placement helps eliminate the attempt by one service to command more assets than it controls. Neither the Israeli Army nor its Air Force attempt to control both sides of the safety line. Instead, it was left to the unified operational commanders to

determine the best use of assets on either side of the line. Ultimately, avoiding the creation of an enemy sanctuary requires teamwork. The IDF demonstrated this level of teamwork during the Bekaa Valley operation. To create a more effective combined deep attack team, the evidence for the inclusion of this final proposal is also compelling.

In sum, sufficient evidence has been produced in this study to indicate that any future command and control system should meet five minimum essential characteristics:

1. Standardize terms.
2. Achieve full potential of combined effects.
3. Provide mutual protection.
4. Mitigate the possibility of fratricide.
5. Eliminate the creation of seams.

The above criteria may or may not be sufficient, but they represent a useful place to start. The challenge for the Army and the Air Force is to use these criteria to reestablish a constructive dialogue concerning the conduct of deep attack operations. Alternatively, each service could develop its own list and use those lists as the basis of initial discussion. The important thing is for senior officers in each service to recommence a serious, candid, and professional dialogue about how best to fight a future enemy and provide for the *common* defense.

Chapter 5

Implications for Contemporary American Doctrine

This survey of the past twenty-five years of deep attack issues has highlighted a number of developments, both good and bad. The cooperation initially achieved by the Army and the Air Force during the development of Active Defense and AirLand Battle doctrine improved both efforts and is the basis for much of the analytical framework. The example provided by the Israeli Defense Force on an operational level further reinforced these parameters as the underpinnings for solid interservice agreements. From these examples of cooperation, this study seeks to apply the derived analytical framework to the examination of contemporary Army, Air Force, and joint doctrine. The implications of this sometimes-conflicting doctrine are troubling. Without a renewed focus on enhancing combined deep attack, the services are likely to increase the potential for fratricide and recreate enemy sanctuaries.

Many of the contentious issues of contemporary American doctrine have their roots in Operation Desert Storm. This contention is particularly true regarding deep attack as illustrated by the escape of the bulk of the Republican Guard divisions cited at the beginning of this study. It is therefore necessary to review briefly the Army's and the Air Force's distinctly different perceptions of the Desert Storm experience.

From the Army's viewpoint, the Air Force was insufficiently responsive to its legitimate tactical and operational requirements. The corps commanders wanted a more thorough preparation of the battlefield, but a perceived strategic emphasis limited the available sorties.[1] Throughout the war, corps commanders nominated 3,067 targets to air planners. Coalition aircraft attacked only a third.[2] Part of the reason for this apparent lack of attention was that the JFC, General H. Norman Schwarzkopf, had different priorities than his corps commanders.[3] Concerned with eliminating the strategic threat of the Republican Guard, General Schwarzkopf chose to reassign some of the aircraft originally scheduled against the Army's targets in southern Kuwait.[4] The lack of a separate joint force land component commander (JFLCC) compounded the problem. With Schwarzkopf acting as both the JFC and the JFLCC, information derived from meetings with the air component occasionally bypassed the corps commanders.[5] This dual-hatted approach unnecessarily complicated the targeting process by squelching some critical internal communication. Nevertheless, the Army's official position is that the coalition experienced difficulty reconciling the ground commanders' needs with those of the air campaign.[6]

From the Air Force's perspective, the Army's view failed to take into account theater-wide priorities. Any attempt to meet all of the corps commanders' requirements

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[1] Scales, 369.
[2] Michael R. Gordon and Bernard E. Trainor, The Generals War: The Inside Story of the Conflict in the Gulf (Boston: Little, Brown and Company, 1995), 319.
[3] Atkinson, 338.
[4] Ibid., 339.
[5] Ibid., 338.
[6] Scales, 369.

would have resulted in less than optimal employment of available air assets. According to the Air Force, the single manager concept and the air tasking order (ATO) planning process efficiently optimized airpower during the war. Under the JFACC's guidance, airpower was combined into a decisive force that contributed directly to the success of the Gulf War. Coalition aircraft were able to focus on General Schwarzkopf's priorities, especially the distant Republican Guard, by combining their efforts through the ATO process. Advocates believe that this centralized airpower scheme achieved far more during Desert Storm than it would have under a less centralized system.[7] With the prodding of Colonel John Warden from the Air Staff's Checkmate division, air planners created a theater-wide plan that targeted the enemy from their highest leaders to their lowest privates. Airpower achieved near simultaneous targeting throughout this spectrum, a parallel attack during which the Iraqi maneuver units were instantly cut off from their command authorities and their support assets. The resultant paralysis gave airpower the opportunity to render major sections of an enemy army combat ineffective.[8] In the Air Force's view, Desert Storm clearly supported its central tenet: centralized control, decentralized execution.

In spite of the coalition's success, the Army and the Air Force continue to argue over the war's doctrinal implications. In the midst of a competition for scarce resources, the services concentrate on parochial answers at the expense of a combined effort. The result is service-specific manuals that provide ample evidence of distinctly different viewpoints.

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[7] Col Edward C. Mann III, US Air Force, Thunder and Lightning: Desert Storm and the Airpower Debates (Maxwell AFB, Alabama: Air University Press, April 1995), 3.

[8] GWAPS, 318.

These varying perspectives leave problematic incompatibilities in their wake. As of mid-1998, joint doctrine has not proven able to resolve significant differences between the Army and the

Air Force concerning deep attack. Therefore, each service continues to refine its preferred solution.

From the Army's point of view, the subject of deep attack is vitally important. To deal with this subject, AirLand Battle doctrine is still the Army's relevant paradigm; but it has evolved to account for a greater reliance on joint and combined operations across the entire spectrum of war.[9] Within this paradigm, Army commanders consider deep operations as an extension of the battlefield requiring synchronized execution of fires, maneuver, and leadership.[10] Accordingly, FM 100-5 states that "the enemy is best defeated by fighting him close and deep simultaneously."[11] Achieving this level of orchestration throughout the battlefield requires that all supporting assets, including those of other services, be included.[12] The goal of this synchronized effort is to shape the battlefield for the close battle. The entire focus of deep operations, then, is to set the conditions for the close battle at a time and place of the ground commander's choosing.

Given the need to shape the battlefield, ground commanders have chosen to rely first and foremost on organic long-range firepower to support their scheme of maneuver. According to FM 6-20, "Deep fires are the most responsive assets the operational level

[9] FM 100-5, 1993, vi.
[10] Ibid., 6-14.
[11] Ibid.
[12] Ibid.

commander has to disrupt threat operations."[13] Organic assets such as airborne troops, air assault forces, attack aviation units, and high speed armor forces achieve success by striking deep when other means "would be too expensive or risky."[14] In addition to responsiveness, the dramatic improvement in the capability of today's long-range weapon systems also makes their use practical. Both field artillery and attack helicopters have proven particularly useful for this role. Modern field artillery, consisting of self-propelled 155 millimeter howitzers, multiple launch rocket systems (MLRS), and Army Tactical Missile Systems, can reach farther than ever before. The 100-plus kilometer range of ATACMS is especially useful for disrupting, delaying, or destroying second echelon enemy forces. Modern attack helicopters have also increased their range and firepower accordingly. To this potent mix of weapons, US forces have added a significant improvement in targeting capabilities using satellites and J-STARS, a combination that gives ground commanders the ability to influence distant events greater than that considered during the original development of AirLand Battle doctrine.[15] With today's need to eliminate the proliferation of battlefield ballistic missiles, these organic assets are crucial to a commander having to deal with the ever increasing number of targets on a modern battlefield. Because airpower, which traditionally deals with over-the-hill attack, is a limited asset, the attack of some deep targets might be delayed without the use of these additional weapon systems.[16]

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[13] Department of the Army Field Manual 6-20, Fire Support in the AirLand Battle, 17 May 1988, n.p.; on-line, Internet, 15 May 1998, available from http://www.atsc-army.org/cgi-bin/atdtl.dll/fm/6-20/fm620.htm.

[14] FM 100-5, 1993, 6-14.

[15] Starry, interview.

[16] Ibid.

From the Air Force point of view, it, too, has an intense interest in the success of deep attack. Called air interdiction (AI) when run by the air component, this role has traditionally been the service's preferred method for using airpower to help ground commanders achieve victory.[17] Whereas close air support is time consuming and difficult to coordinate under the best circumstances, interdiction is an ideal marriage for an organization designed for centralized control and decentralized execution. This preference for interdiction has led the Air Force to introduce formally the expanded air and space power function of counterland. In the Air Force's lexicon, counterland is the surface complement to the traditional counterair function and focuses at the tactical and operational levels of war. Counterland targets include fielded enemy surface forces and the infrastructure which directly supports them.[18] It also includes the "decisive halt" type of air campaign, which represents an attempt by airpower to achieve superiority over surface operations with or without the presence of friendly surface forces.[19] However, counterland is not necessarily synonymous with conventional interdiction. Although designed to achieve the same effects, the counterland function includes less emphasis on synchronization with ground operations. Conversely, conventional interdiction may include additional missions outside of the counterland function, such as countersea tasks. To make room for the "decisive halt phase," AFDD 1 states that "interdiction and surface-force maneuver *can* be mutually supporting" (emphasis added).[20] When synchronization is desired, it is best to do so unconstrained by boundaries and under the

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[17] Air Force Doctrine Document 2-1.3, Counterland, March 1998, Draft, 2.
[18] AFDD 2-1.3, 1.
[19] AFDD 1, 48.

direction of a single commander who can tie together air, space, information warfare, and surface assets across the entire theater.[21] Using the principle of unity of command, this single commander will normally be the JFACC, because the air component typically provides the preponderance of assets for the interdiction mission.

According to the Air Staff, the counterland function is made possible because of modern airpower's increased lethality. When the latest generation of aircraft employ PGMs, the level of destruction achieved can potentially be decisive. This enhanced ability to influence the outcome of battle has eliminated the traditional idea that airpower supports the ground commander in the definition of interdiction. The Air Staff's concept is that "in some circumstances ground maneuver may support aerial maneuver by forcing the enemy into a position that is more vulnerable to air attack, which in turn enables airpower to deliver a decisive blow."[22] In fact, Air Force doctrine states explicitly that the JFACC is the supported commander for AI.[23] The other key to the interdiction portion of counterland lies in its use of range. Interdiction, as the Air Force defines it, engages enemy surface forces beyond the range at which they can engage friendly surface forces.[24] This range occurs at the point where air missions no longer require detailed integration with the fire and maneuver of friendly forces.[25] According to Air Force doctrine, defining interdiction based upon enemy capability helps eliminate the risk of fratricide against friendly ground forces. It also reduces the need to deconflict the

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[20] Ibid.
[21] Ibid.
[22] AFDD 2-1.3, 7.
[23] Ibid., 43.
[24] Ibid., 3.
[25] Ibid.

airspace between airpower and surface fires.[26] J-STARS can play a significant role in this definition by accurately locating widespread troops from both sides. Thus, the counterland function attempts to broaden the air-to-ground role and further enable airpower to achieve the joint force commander's objectives across the theater.

Although each service emphasizes its preferred methods, US deep attack doctrine today is ostensibly joint. The Goldwater-Nichols Department of Defense Reorganization Act of 1986 fostered some significant organizational changes that are slowly making their presence felt. For instance, the Joint Warfighting Center established its own doctrine center where issues that affect all of the services are codified. Nevertheless, the progress of joint doctrine has been glacial. The individual services remain responsible for much of their own areas of expertise, which has led to a confusing stew of documents that should be more closely coordinated. Confusion resulting from this melting pot of ideas is one reason why cooperation on deep attack between the Army and the Air Force has become so contentious. Joint doctrine delegates responsibility for deep attack to the prerogative of either the joint force commander (JFC) or, if one is appointed, a joint force air component commander (JFACC).[27] When each service attempts to influence these commanders, they are, in a sense, forced to compete for their points of view backed by their sometimes conflicting doctrine. Adaptability and flexibility are certainly laudable goals, but when they lead to outright disagreements between service components, more specific guidance is needed.

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[26] Ibid.

[27] Joint Publication 3-0, Doctrine for Joint Operations, 1 February 1995, IV-13.

In the area of deep operations, Joint Publication 3-03, *Doctrine for Joint Interdiction Operations*, attempts to provide the necessary guidance. It is an interesting mix of Army and Air Force thoughts on the subject of deep operations. This publication initially agrees with Army doctrine that synchronization between air and ground maneuver, a responsibility of the supported land commander, is a requirement to prosecute interdiction successfully. However, it stops short of the Army's emphasis on shaping the battlefield for the close fight.[28] In fact, the close battle is not mentioned in this publication. The nearest this publication gets to the Army's emphasis on the close battle is a brief discussion of deep operations theory. According to this theory, "The intent of deep operations is to bring force to bear on the opponent's entire structure, at the tactical, operational, and strategic depths, in a near simultaneous manner."[29] Having stopped short of clearly supporting the need to shape the battlefield for the close fight, Joint Publication 3-03 limits its support for synchronization.

Joint doctrine also stops short of endorsing the Air Force counterland function. AFDD 2-1.3, *Counterland*, however, is a new draft publication awaiting final approval. Joint doctrine clearly echoes the Air Force in the notion that the definition of interdiction does not include the term support. Indeed, the JFACC is normally the supported commander for AI in both joint and Air Force doctrine.[30] This line of reasoning extends to the notion that airpower can conduct interdiction operations separate from the land

[28] Joint Publication 3-03, Doctrine for Joint Interdiction Operations, 10 April 1997, IV-1.
[29] Ibid., II-2.
[30] Ibid., viii.

force commander's scheme of maneuver.[31] Such operations can be appropriate, because interdiction normally focuses on operational level objectives which may not correspond directly with the close battle.[32] Using airpower on a theater-wide basis is very much supportive of Air Force doctrine. Whether joint doctrine will go so far as to embrace the counterland function and the Air Force's "halt phase" remains to be seen.

This survey of current doctrine has highlighted some very real differences that need to be clarified by the services. From the Army's perspective, warfare is a land-centric activity in which fielded armies, aided by air support, achieve final victory. From the Air Force's perspective, warfare has become an air- and space-centric activity in which air, space, and information dominance will prevail. At the heart of this difference in perspective is whether airpower can be decisive without land forces. The Army acknowledges that it cannot win without airpower, but the Air Force is proposing a change in the traditional relationship that has some in the Army questioning the air service's actual capabilities. Unfortunately, this debate on the future of warfare will not be solved by this study alone, but it does highlight the difficulties involved in attempts to create a better framework for interservice cooperation.

Another result of the service's differing perspectives is the debate on the supporting and supported relationship between the services. Army doctrine repeatedly refers to airpower as a supporting activity. The Air Force, while acknowledging that it readily supports ground commanders, believes that the Army can, in turn, support airpower's efforts. By forcing the enemy into a position more vulnerable to air attack, the Army can

[31] Ibid., II-7.
[32] Ibid., II-2.

support a decisive blow by the Air Force.[33] The supporting-supported relationship has engendered a great deal of emotional debate and should be addressed in any discussion of combined deep attack.

A third major problem area stems from the question of whether the JFACC should have control over Army helicopters. A reluctance to allow the JFACC to act as the single manager of airpower has become a serious area of disagreement. Perhaps a result of the clash over the goals of an air campaign, the Army prefers to keep its helicopters off the ATO. Setting aside the airspace in an Army area of operations below a certain altitude for the exclusive use of attack helicopters gives ground commanders the opportunity to synchronize the airpower that they control directly. The Air Force contends that helicopters, when not on the ATO, create a hazardous situation by increasing the chances for fratricide. Fixed wing pilots tend to treat aircraft not listed on the ATO as potential enemies, necessitating a time consuming process of identification that tragically failed recently in Northern Iraq. Both services deserve a command and control system capable of supporting the needs of all commanders as well as one that mitigates the chances of fratricide.

The final area of concern involves the continuing debate over the establishment and use of the fire support coordination line. The FSCL was originally conceived as a "no bomb line" for World War II aircrews to use when returning from missions with unexpended ordnance. The crews could drop freely on targets of opportunity beyond this line, relatively sure that there would be no friendly troops below.[34] Today, the FSCL still

[33] AFDD 2-1.3, 7.
[34] Winton, 427.

implies a relatively free area beyond the line for aircraft to attack with minimal coordination.

The heart of the problem with the FSCL lies in the long-running debate over its placement. Army commanders, seeking sufficient control to ensure proper synchronization for deep attack, prefer the FSCL to be placed well beyond the traditional fifteen to twenty-five kilometer range of tube artillery. They believe that the ability of ATACMS and attack helicopters to strike beyond one hundred kilometers requires greater control. This extended placement, however, burdens the air component with additional coordination requirements at distances where friendly troops are well out of range of the enemy. The Air Force argues for the traditional placement of the FSCL at the maximum range of organic artillery and short-range rockets. The Air Force further believes that this traditional placement enhances the JFACC's command and control over the preponderance of interdiction assets normally supplied by the air component. Again, the contentious nature of this coordination line requires that its use be firmly decided by senior officers to prevent the development of a potentially costly enemy sanctuary.

Overall, this survey of current American doctrine has revealed a growing disparity in the area of deep operations. Except for mutual protection, neither service seems receptive to seeking answers for combined operations. Instead, each service appears intent on finding its preferred solution. In some ways, the relationship between the Army and the Air Force has deteriorated over the last decade despite the enactment of the Goldwater-Nichols Act in 1986, which should have strengthened jointness. Instead, both services claim to be consistent with joint doctrine when this study has demonstrated a fundamental

difference in their points of view that makes such statements dubious.[35] Only a joint doctrine that has been watered down can satisfy this claim, and the US military forces need joint doctrine that makes its case strongly for conducting operations properly. So, the authoritative nature of today's joint doctrine notwithstanding, much work is left to be done.

The five characteristics of an effective C^2 system for deep attack proposed by this study represent an approach to resolving these doctrinal discrepancies. It is now up to each service to accept the challenge of renewing a critical dialogue based on these criteria or those of its own choosing. The conflicting nature of today's deep attack doctrine demands to be addressed at the highest levels, and a comprehensive Army-Air Force dialogue can be an effective tool to build a new bridge. That bridge should have the following pillars:

1. Standardize terms.
2. Achieve full potential of combined effects.
3. Provide mutual protection.
4. Mitigate the possibility of fratricide.
5. Eliminate the creation of seams.

[35] FM 100-5, 1993, 2-0 and AFDD 1, v.

Appendix A

Definitions

The following definitions are approved Department of Defense (DOD) terminology from Joint Publication 1-02, *DOD Dictionary*, updated 23 March 1997:

air-ground operations system—(DOD, NATO) An Army/Air Force system providing the ground commander with the means for receiving, processing and forwarding the requests of subordinate ground commanders for air support missions and for the rapid dissemination of information and intelligence.

air operations center—(DOD) The principal air operations installation from which aircraft and air warning functions of combat air operations are directed, controlled, and executed. It is the senior agency of the Air Force Component Commander from which command and control of air operations are coordinated with other components and Services. Also called **AOC.**

air interdiction—(DOD, NATO) Air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required.

air tasking order—(DOD) A method used to task and disseminate to components, subordinate units, and command and control agencies projected sorties/capabilities/forces to targets and specific missions. Normally provides specific instructions to include call signs, targets, controlling agencies, etc., as well as general instructions. Also called **ATO.**

battlefield air interdiction—(NATO) Air action against hostile surface targets which are in a position to directly affect friendly forces and which require joint planning and coordination. While BAI missions require coordination in joint planning, they may not require continuous coordination during the execution stage. (NATO ATP 33[A]/ATP 27[B])

close air support—(DOD) Air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. Also called **CAS.**

deep supporting fire—(DOD, NATO) Fire directed on objectives not in the immediate vicinity of our forces, for neutralizing and destroying enemy reserves and weapons, and interfering with enemy command, supply, communications, and observations.

doctrine—(DOD) Fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application.

fire support coordination line—(DOD) A line established by the appropriate land or amphibious force commander to ensure coordination of fire not under the commander's control but which may affect current tactical operations. The fire support coordination line is used to coordinate fires of air, ground, or sea weapons systems using any type of ammunition against surface targets. The fire support coordination line should follow well-defined terrain features. The establishment of the fire support coordination line must be coordinated with the appropriate tactical air commander and other supporting elements. Supporting

elements may attack targets forward of the fire support coordination line without prior coordination with the land or amphibious force commander provided the attack will not produce adverse surface effects on or to the rear of the line. Attacks against surface targets behind this line must be coordinated with the appropriate land or amphibious force commander. Also called **FSCL.**

forward air controller—(DOD) An officer (aviator/pilot) member of the tactical air control party who, from a forward ground or airborne position, controls aircraft in close air support of ground troops.

information superiority—(DOD) That degree of dominance in the information domain which permits the conduct of operations without effective opposition.

information warfare—(DOD) Actions taken to achieve information superiority by affecting adversary information, information-based processes, information systems, and computer-based networks while leveraging and defending one's own information, information-based processes, information systems, and computer-based networks. Also called **IW.**

joint doctrine—(DOD) Fundamental principles that guide the employment of forces of two or more Services in coordinated action toward a common objective. It will be promulgated by the Chairman of the Joint Chiefs of Staff, in coordination with the combatant commands, Services, and Joint Staff.

supported commander—(DOD) The commander having primary responsibility for all aspects of a task assigned by the Joint Strategic Capabilities Plan or other joint operation planning authority. In the context of joint operation planning, this term refers to the commander who prepares operation plans or operation orders in response to requirements of the Chairman of the Joint Chiefs of Staff.

synchronization—(DOD) 1. The arrangement of military actions in time, space, and purpose to produce maximum relative combat power at a decisive place and time. 2. In the intelligence context, application of intelligence sources and methods in concert with the operational plan.

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